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09/589,299	06/07/2000	Mark B. Spitzer	MIOPT-005XX	9186
207	7590	03/09/2005	EXAMINER	
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP TEN POST OFFICE SQUARE BOSTON, MA 02109			CHOW, DOON Y	
			ART UNIT	PAPER NUMBER
			2675	
DATE MAILED: 03/09/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/589,299

**Applicant(s)**

SPITZER, MARK B.

**Examiner**

Dennis-Doon Chow

**Art Unit**

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-20, 28-35 and 39-41 is/are allowed.
- 6) ☒ Claim(s) 1-12, 21-38 and 42-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All. b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-7, 9-11, 28-29 and 37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji et al. (hereinafter "Amafuji") US 6,292,158 B1 in view of Rallison et al. (hereinafter "Rallison"), US 5,949,583.

**As pertaining to claim 1**, Amafuji discloses a compact display device 201 for transmitting an image to a user's eye, the display device comprising: a head-mountable support fixture 203 comprising an elongated member having a first end and a second end 204c; a projection system 204 including a display 204a operative to provide an image, the support fixture 204c attached at the first end to the projection system 204; and an eyepiece assembly 204b attached to the second end of the support fixture 204c; wherein the support fixture 204c maintains the projection system 204 and the eyepiece assembly 204b in alignment along an optical path through free space between the projection system 204 and the eyepiece assembly 204b, with the projection system 204 disposed to transmit the image on the optical path and the eyepiece assembly 204b disposed to receive the image from the projection system 204 and to direct the image to the user's eye 6 (Figs. 1 and 5).

**As pertaining to claim 1**, Amafuji does not disclose an axial optical system.

**As pertaining to claim 1**, Rallison discloses a head mounted display system in which on-axis or axial system is used (col. 2, lines 8-16; col. 3 lines 7-20).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the on-axis or axial system of Rallison with Amafuji.

The suggestion/motivation for doing so would have been to provide HMD that produces virtual images with a minimal amount of aberrations, therefore allowing for better image quality and light efficiency.

**As pertaining to claim 2**, Amafuji teaches the device of claim 1, wherein the support fixture comprises a post oriented off the optical path (Fig. 5). Claim 2 is dependent on claim 1 and is rejected on the same basis and what is stated above.

**As pertaining to claim 3**, Amafuji teaches the device of claim 2, wherein the post is curved Fig. 5). Claim 3 is dependent on claims 1 and 2 and is rejected on the same basis and what is stated above.

**As pertaining to claim 4**, Amafuji teaches the device of claim 1, wherein the display comprises a liquid crystal display 235, an electroluminescent display, a field emission display, or a cathode ray tube (col. 10, lines 43-54; Fig. 6). Claim 4 is dependent on claim 1 and is rejected on the same basis and what is stated above.

**As pertaining to claim 5**, Amafuji teaches the device of claim 1, wherein the projection system further comprises an illumination source 232 (col. 10, lines 43-54; Fig. 6). Claim 5 is dependent on claim 1 and is rejected on the same basis and what is stated above.

**As pertaining to claim 6,** Amafuji teaches the device of claim 1, wherein the eyepiece assembly 204b comprises a reflecting surface oriented to direct the image to the user's eye and a lens (col. 10, lines 1-2; col. 11, lines 1-7; Fig. 5-6). Furthermore, Rallison teaches a reflecting surface oriented to direct the image to the user's eye and a lens (figs. 1-2 and 5-6). Claim 6 is dependent on claim 1 and is rejected on the same basis and what is stated above.

**As pertaining to claim 7,** Amafuji teaches the device of claim 1, wherein the eyepiece assembly allows passage of ambient light to the user's eye (Fig. 5). Furthermore, Rallison teaches the allowance of ambient light to the user's eye (col. 2, lines 63-67 and col. 3, lines 1-5). Claim 7 is dependent on claim 1 and is rejected on the same basis and what is stated above.

**As pertaining to claim 9,** Amafuji teaches the device of claim 1, wherein the projection system further comprises a reflecting surface 232 oriented to direct light from the display onto the optical path through free space (col. 10, lines 43-52; Fig. 6). Claim 9 is dependent on claim 1 and is rejected on the same basis and what is stated above.

**As pertaining to claim 10,** Amafuji teaches the device of claim 1, wherein the projection system further comprises a diffusion panel 236, which can be construed as a lens because it is used for uniforming unevenness in the light from the back light 232 (col. 10, lines 43-52; Fig. 6). Claim 10 is dependent of claim 1 and is rejected on the same basis and what is stated above.

**As pertaining to claim 11,** Amafuji teaches the device of claim 1, wherein the projection system is disposed within a housing 204, and the housing is attached to the

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support fixture at the first end (Fig. 5). Claim 11 is dependent on claim 1 and is rejected on the same basis and what is stated above.

**As pertaining to claim 28**, Amafuji teaches the device of claim 1, further comprising a housing, the projection system disposed within the housing, circuits and wiring in electrical communication with the projection system disposed within the housing, and the support fixture attached to the housing (Fig. 5-6). Claim 28 dependent on claim 1 and is rejected on the same basis and what is stated above.

**As pertaining to claim 29**, Amafuji teaches the device of claim 28, further comprising a mounting device configured to mount the housing to a headband 203 (Fig. 5). Claim 29 is dependent on claims 1 and 28 and is rejected on the same basis and what is stated above.

**As pertaining to claim 37**, Amafuji teaches a computer in communication with the display device of claim 1 (col. 1, lines 4-7). Claim 37 is dependent on claim 1 and is rejected on the same basis and what is stated above.

3. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji and Rallison, as applied to claim 1 above in view of Taniguchi et al. (hereinafter "Taniguchi"), US 6,023,253.

**As pertaining to claim 8**, Amafuji and Rallison disclose what has been previously stated above. Rallison does suggest that his invention can include some of the limitations (col. 8, lines 12-67 and col. 9, lines 1-11).

**As pertaining to claim 8,** Amafuji and Rallison do not disclose the eyepiece assembly comprising a polarization beam-splitter coating, a quarterwave plate, and a focusing mirror arranged so that polarized light from the projection system passes the beam splitter coating and the quarterwave plate and is reflected from the focusing mirror to pass in the opposite direction through the quarterwave plate and is reflected from the beam-splitter coating toward the user's eye.

**As pertaining to claim 8,** Taniguchi discloses an eyepiece assembly comprising eyepiece assembly comprising polarization beam splitter 4, a quarterwave plate 18, a concave half mirror 19, which can be construed as the focusing mirror because it is used to reflect the light from the quarter wave plate to pass through the opposite direction through the quarterwave plate and is reflected from the beam splitter toward the user's eye 9 (col. 11, lines 43-62; Fig. 9).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the eyepiece assembly of Taniguchi with the eyepiece of Amafuji and Rallison.

The suggestion/motivation for doing so would have been to provide a better eyepiece assembly that allows for increased or improved observation in which there is a higher luminance and definition of the picture being observed by the user. Claim 8 is dependent on claim 1 and is rejected on the same basis and what is stated above.

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4. **Claims 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji and Rallison as applied to claim 1 above, in view of Ronzani et al. (hereinafter "Ronzani"), US 5,844,656.

**As pertaining to claim 12**, Amafuji and Rallison disclose what has previously been stated, see claim 1 for rejection.

**As pertaining to claim 12**, they do not disclose the eyepiece assembly is disposed within a curved housing.

**As pertaining to claim 12**, Ronzani discloses a HMD display in which the eyepiece assembly is hollow and spherical and therefore curved (figs. 1-9).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the curved eyepiece assembly of Ronzani with that of Amafuji and Rallison.

The suggestion/motivation for doing so would have been to provide for a better eyepiece assembly which can be encased or housed to allow for a better image to be produce without any outside distractions or interferences, i.e. wind, rain, snow etc.

Claim 12 is dependent on claim 1 and is rejected on the same basis and what is stated above.

5. **Claim 21-25, 28-29 and 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji in view of Heacock et al. (hereinafter "Heacock") US 5,539,422.



**As pertaining to claim 21-25**, Amafuji discloses what has been previously stated above.

**As pertaining to claim 21-25**, Amafuji does not disclose the eyepiece assembly having a solid optical material having an external surface and an internal reflective surface, the material having an index of refraction so the light incident on the external surface is refracted as the light propagates into the material and is reflected off the internal surface.

**As pertaining to claim 21-25**, Heacock discloses a display device an eyepiece assembly including a solid optical material which having a selected index of refraction, an external surface and an internal reflective surface (col. 12, lines 54-67). The reflective surface is flat, curved, or spherical, and has a coated reflective surface.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Heacock's eyepiece in the display device of Amafuji.

The suggestion/motivation for doing so would have been to provide a better eye assembly for producing more efficient images that would entitle the image to have higher contrast, resolution, luminance and cleanliness.

**As pertaining to claim 28**, Amafuji teaches the device of claim 21, further comprising a housing, the projection system disposed within the housing, circuits and wiring in electrical communication with the projection system disposed within the housing, and the support fixture attached to the housing (Fig. 5-6). Claim 28 dependent on claim 21 and is rejected on the same basis and what is stated above.

**As pertaining to claim 29**, Amafuji teaches the device of claim 28, further comprising a mounting device configured to mount the housing to a headband 203 (Fig. 5). Claim 29 is dependent on claims 21 and 28 and is rejected on the same basis and what is stated above.

**As pertaining to claim 43**, Amafuji teaches a computer in communication with the display device of claim 21 (col. 1, lines 4-7). Claim 43 is dependent on claim 21 and is rejected on the same basis and what is stated above.

6. **Claims 26-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji and Heacock as applied to claim 21 above, and further in view of Ronzani.

**As pertaining to claims 26-27**, Amafuji and Heacock disclose what has previously been stated above.

**As pertaining to claims 26-27**, they do not disclose the eyepiece assembly disposed in a curved or spherical housing.

**As pertaining to claims 26-27**, Ronzani discloses a HMD display in which the eyepiece assembly is hollow and spherical and therefore curved (figs. 1-9).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the curved eyepiece assembly of Ronzani with that of Amafuji and Heacock.

The suggestion/motivation for doing so would have been to provide for a better eyepiece assembly which can be encased or housed to allow for a better image to be produce without any outside distractions or interferences, i.e. wind, rain, snow etc.

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Claims 26-27 are dependent on claim 21 and are rejected on the same basis and what is stated above.

7. **Claims 30-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji, and Rallison as applied to claim 1 or 28 above, in view of Lebby et al. (hereinafter "Lebby"), US 5,469,185.

**As pertaining to claims 30-32**, Amafuji and Rallison disclose what has previously been stated above. Furthermore, Amafuji discloses the microphone 208a is mounted on a boom 208b and both are mounted on a headband 203. Amafuji does not disclose the microphone supported by the housing, microphone mounted on a boom and an earpiece supported by the housing.

**As pertaining to claims 30-32**, Lebby discloses head mounted display in which the microphone 54 is mounted on a boom, and an earpiece 52, in which both of these are supported by the housing 56 (Fig. 4).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the HMD design of Lebby with the HMD Amafuji and Rallison.

The suggestion/motivation for doing so would have been to provide a different design that is not necessarily better but maybe less cumbersome, to when the user is putting the apparatus on. Claims 30-32 are dependent on claims 1 and 28 and are rejected on the same basis and what is stated above.

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8. **Claims 33-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji and Rallison as applied to claim 1 or 28 above, in view of Fan et al (hereinafter "Fan"), US 5,815,126.

**As pertaining to claims 33-35**, Amafuji and Rallison disclose what has previously been

stated above. Furthermore, Amafuji discloses the microphone 208a is mounted on a boom 208b and both are mounted on a headband 203. The examiner feels that these claims and the preceding claims are of a design choice because they do not add any benefit to how the apparatus functions. However, with that in mind Amafuji does not disclose the housing attached to a boom, in which the boom is attached to the headband, a microphone support by the headband and an earpiece supported by the headband.

**As pertaining to claims 33-35**, Fan discloses many different designs in which there could be many different combinations to how each of the following could be attaché. The housing 1100 can be attached to a boom as shown on Figs. 32A-32B and 33 and they are attached to a headband, the microphone and earpiece can be attached to the headband or not as shown in Figs. 32A, 33 and 34A.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the designs of Fan with Amafuji and Rallison.

The suggestion/motivation for doing so would have been to provide different designs choices to allow for a less cumbersome apparatus. Claims 33-35 are dependent on claims 1 and 28 and are rejected on the same basis and what is stated above.

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9. **Claims 30-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji, and Heacock as applied to claim 21 or 28 above, in view of Lebby et al. (hereinafter "Lebby"), US 5,469,185.

**As pertaining to claims 30-32**, Amafuji and Heacock disclose what has previously been stated above. Furthermore, Amafuji discloses the microphone 208a is mounted on a boom 208b and both are mounted on a headband 203. Amafuji does not disclose the microphone supported by the housing, microphone mounted on a boom and an earpiece supported by the housing.

**As pertaining to claims 30-32**, Lebby discloses head mounted display in which the microphone 54 is mounted on a boom, and an earpiece 52, in which both of these are supported by the housing 56 (Fig. 4).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the HMD design of Lebby with the HMD Amafuji and Heacock.

The suggestion/motivation for doing so would have been to provide a different design that is not necessarily better but maybe less cumbersome, to when the user is putting the apparatus on. Claims 30-32 are dependent on claims 21 and 28 and are rejected on the same basis and what is stated above.

10. **Claims 33-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji and Heacock as applied to claim 1 or 13 or 28 above, in view of Fan et al (hereinafter "Fan"), US 5,815,126.

**As pertaining to claims 33-35**, Amafuji and Heacock disclose what has previously been stated above. Furthermore, Amafuji discloses the microphone 208a is mounted on a boom 208b and both are mounted on a headband 203. The examiner feels that these claims and the preceding claims are of a design choice because they do not add any benefit to how the apparatus functions. However, with that in mind Amafuji does not disclose the housing attached to a boom, in which the boom is attached to the headband, a microphone support by the headband and an earpiece supported by the headband.

**As pertaining to claims 33-35**, Fan discloses many different designs in which there could be many different combinations to how each of the following could be attaché. The housing 1100 can be attached to a boom as shown on Figs. 32A-32B and 33 and they are attached to a headband, the microphone and earpiece can be attached to the headband or not as shown in Figs. 32A, 33 and 34A.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the designs of Fan with Amafuji and Heacock.

The suggestion/motivation for doing so would have been to provide different designs choices to allow for a less cumbersome apparatus. Claims 33-35 are dependent on claims 21 and 28 and are rejected on the same basis and what is stated above.

11. **Claim 36** is rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji and Rallison as applied to claim 1 above, in view of Newman et al. (hereinafter "Newman"), US 5,844,824.

**As pertaining to claim 36**, Amafuji and Rallison disclose what has been previously stated above. Also, Amafuji discloses that the display system can have a wireless modem (col. 12, lines 65-67; col. 13, lines 1-14). They do not disclose the display system can be in communication with a cellular phone.

**As pertaining to claim 36**, Newman discloses that a head mounted display can be in communication with a cellular phone (col. 9, lines 43-67; col. 10, lines 1-67 and col. 1, lines 1-42).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the communication capabilities of Newman with Amafuji and Rallison.

The suggestion/motivation for doing so would have been provide the display system with another communication device, in this case a cellular phone so as maybe to do multi-tasking with a phone or something else and this also allows the image to be magnified without causing strain on the user's eye. Claim 36 is dependent on claim 1 and is rejected on the same basis and what is stated above.

12. **Claim 38** is rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji and Rallison as applied to claim 1 above, in view of Horiuchi, US 6,304,234 B1.

**As pertaining to claim 38**, Amafuji and Rallison disclose what has been previously stated above. Also, Amafuji discloses that the display system can have a wireless modem (col. 12, lines 65-67; col. 13, lines 1-14). They do not disclose the display system can be in communication with a personal digital assistant (PDA).

**As pertaining to claim 38**, Horiuchi discloses that the head mounted device used can be in communication with a PDA to allow the user to see a bigger image of the screen of the PDA (col. 1, lines 4-9; col. 3, lines 19-23; Fig. 1A).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the communication capabilities of Horiuchi with Amafuji and Rallison.

The suggestion/motivation for doing so would have been to provide another way to communicate with a portable device, in this case a PDA. This also allows for multi-tasking to take place, as in input phone numbers, names, play games, etc. but with a magnified image without causing strain on the user's eyes. Claim 38 is dependent on claim 1 and is rejected on the same basis and what is stated above.

13. **Claim 42** is rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji and Heacock as applied to claim 21 above, in view of Newman et al. (hereinafter "Newman"), US 5,844,824.

**As pertaining to claim 42**, Amafuji and Heacock disclose what has been previously stated above. Also, Amafuji discloses that the display system can have a wireless modem (col. 12, lines 65-67; col. 13, lines 1-14). They do not disclose the display system can be in communication with a cellular phone.

**As pertaining to claim 42**, Newman discloses that a head mounted display can be in communication with a cellular phone (col. 9, lines 43-67; col. 10, lines 1-67 and col. 1, lines 1-42).



At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the communication capabilities of Newman with Amafuji and Heacock.

The suggestion/motivation for doing so would have been provide the display system with another communication device, in this case a cellular phone so as maybe to do multi-tasking with a phone or something else and this also allows the image to be magnified without causing strain on the user's eye. Claim 42 is dependent on claim 21 and is rejected on the same basis and what is stated above.

14. **Claim 44** is rejected under 35 U.S.C. 103(a) as being unpatentable over Amafuji and Heacock as applied to claim 21 above, in view of Horiuchi, US 6,304,234 B1.

**As pertaining to claim 44**, Amafuji and Heacock disclose what has been previously stated above. Also, Amafuji discloses that the display system can have a wireless modem (col. 12, lines 65-67; col. 13, lines 1-14). They do not disclose the display system can be in communication with a personal digital assistant (PDA).

**As pertaining to claim 44**, Horiuchi discloses that the head mounted device used can be in communication with a PDA to allow the user to see a bigger image of the screen of the PDA (col. 1, lines 4-9; col. 3, lines 19-23; Fig. 1A).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the communication capabilities of Horiuchi with Amafuji and Heacock.

The suggestion/motivation for doing so would have been to provide another way to communicate with a portable device, in this case a PDA. This also allows for multi-tasking to take place, as in input phone numbers, names, play games, etc. but with a magnified image without causing strain on the user's eyes. Claim 44 is dependent on claim 21 and is rejected on the same basis and what is stated above and what is stated above.

***Allowable Subject Matter***

15. Claims 13-20, 28-35 and 39-41 are allowed.

***Response to Arguments***

16. Applicant's arguments filed 23 December 2004 have been fully considered but they are not persuasive.

Regarding to the independent claim 1 and claims dependent therefrom, applicant argues that replacing Amafuji's off-axis system with Rallison's on-axis system would not be obvious. The examiner disagrees with applicant's arguments because of the same reasons set forth previously.

Regarding to the independent claim 13 and claims dependent therefrom, these claims are allowed.

Regarding to the independent claim 21 and claims dependent therefrom, applicant's arguments are not persuasive because of the new ground of rejections.

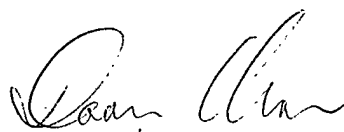
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis-Doon Chow whose telephone number is 703-305-4398. The examiner can normally be reached on 8:30-6:00, Alternate Monday off.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Chow  
March 1, 2005



**DENNIS-DOON CHOW**  
**PRIMARY EXAMINER**